



A.D. 1793 N° 1943.

S P E C I F I C A T I O N

OF

MATTHEW PITTS.

STEAM ENGINES.

L O N D O N :

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Steam Engines.

PITTS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, MATTHEW PITTS, of Abinger, in the County of Surrey, Captain in His Majesty's Corps of Royal Engineers, send greeting.

WHEREAS His most Excellent Majesty King George the Third, by His
5 Royal Letters Patent, under the Great Seal of Great Britain, bearing date on
or about the Twenty-fifth day of March, in the thirty-third year of His said
Majesty's reign, did give and grant unto me, the said Matthew Pitts, my
executors, administrators, and assigns, His especial licence, full power, sole
privilege and authority, that I, the said Matthew Pitts, my executors, admi-
10 nistrators, and assigns, and every of them, by myself and themselves, or by my
and their deputy or deputies, servants or agents, or such others as I, the said
Matthew Pitts, my executors, administrators, or assigns, should at any time
agree with, and no others, from time to time and at all times thereafter during
the term of years therein expressed, should and lawfully might make, use,
15 exercise, and vend my new invented "IMPROVEMENTS ON THE STEAM ENGINE, AND
MY NEW INVENTED METHOD OF GENERATING STEAM, WITH ITS APPLICATION TO STEAM
ENGINES, OR FOR ANY OTHER PURPOSE WHERE STEAM IS USED," within that part of His
Majesty's Kingdom of Great Britain called England, His Dominion of Wales,
and Town of Berwick upon Tweed, in such manner as to me, the said Matthew
20 Pitts, my executors, administrators, or assigns, or any of them, should in my
or their discretions seem meet; in which said in part recited Letters Patent is
contained (among other things) a proviso obliging me, the said Matthew Pitts,
to particularly describe and ascertain the nature of my said Invention, and in
what manner the same is to be performed, by an instrument in writing under
25 my hand and seal, and to cause the same to be inrolled in His Majesty's High

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Court of Chancery within one calendar month next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Matthew Pitts, do hereby declare that my said new invented improvement on the steam engine, and my new method of generating steam, with its application to steam engines, or for any other purpose where steam is used, are made, exercised, and performed in manner following (that is to say) :—

The improvement on the steam engine relates to the piston in the great or house cylinder, the padding or stuffing whereof which surrounds the circumference of the piston is so contrived that as it wears away it is extended and made to fit the cylinder without any fresh padding or stuffing, or being taken out, as has hitherto been the practice, which not only occasioned great labour, but a considerable loss of time ; the above section, marked Figure 1, represents a section of the piston in the cylinder, and is as follows :—The bottom or lower part of the piston is of iron or other metal, in the form as expressed by its section I, I, I, to which the piston rod is fastened ; on the external part of the said bottom the padding K, K, rests, and is kept from rising by means of the ring L, L, secured by screws to the said lower plate I, I, I, and the back of the padding is supported by wedges M, M, the heads of which are applied next the said padding or stuffing, and rest all the way round on the inclined part of the said bottom plate I, I, I. The wedges extend or force out the said padding or stuffing by means of the ring N, N, which is of a conical form, and made to approach the lower plate I, I, I, by the means of screws, by which and by its movement it forces out the said wedges M, M, whereby the said padding or stuffing is extended or forced out, and made to fit the interior surface of the cylinder exactly.

It has been a received opinion, and at this time generally adopted, that to obtain steam a compact body of water was required, and that body, in proportion to the quantity of steam required, and that where a great quantity of steam was wanted, a great body of boiling water was necessary. But I have found from experience that a large quantity of steam can be obtained by having in use a small quantity of water disposed so as to occupy or cover a large surface, and by exposing the said surface to the influence of heat, that the quantity of steam generated was in proportion to the extent of the said surface and strength of heat applied.

My new method of generating steam, and also my new mode of applying the same to steam engines, or any other purpose where steam is used, is as follows :—I have two vessels of copper or any other more convenient material

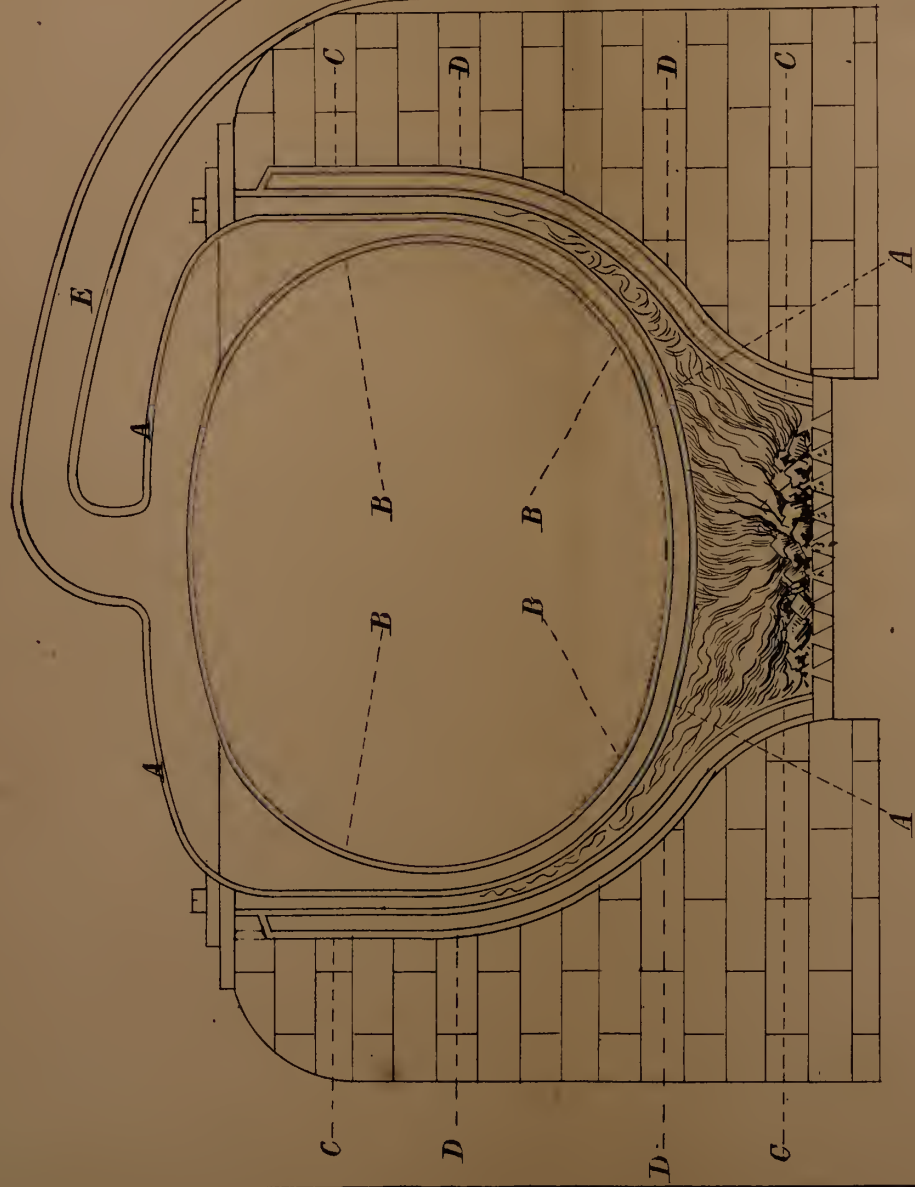


FIGURE . 1 .

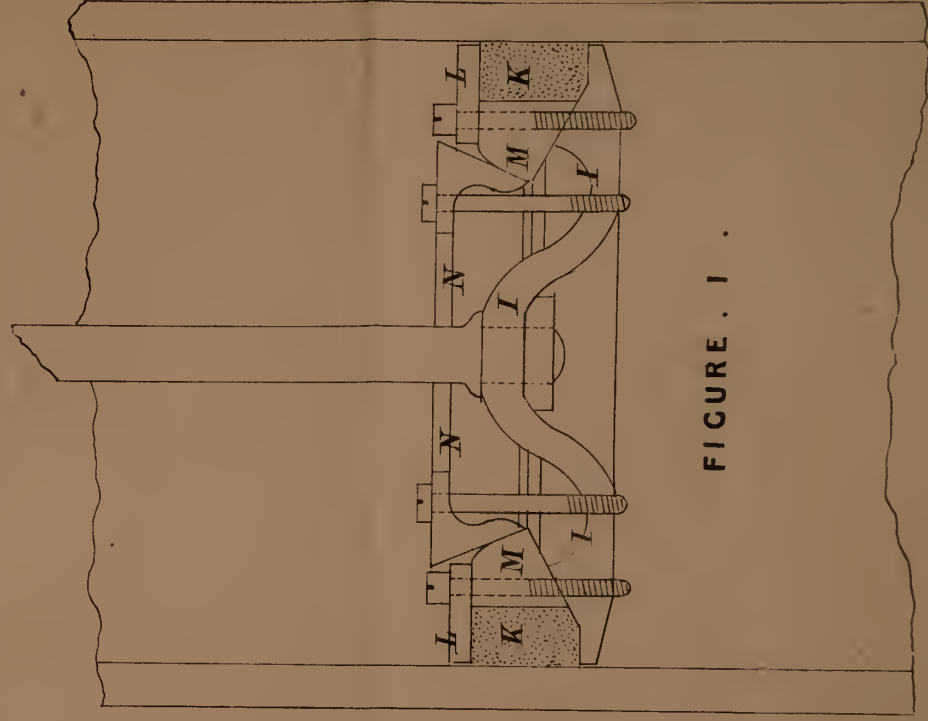


FIGURE . 2 .

The enrolled drawing is colored.

Malby & Sons lith.

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nearly similar, the one contained within the other, so as to admit a thin body of water between them. The fire is made to act on the outside of the external vessel, the section of it being represented by the yellow space A, A, A, A, in Figure 2, and the section of the inner vessel by the yellow space B, B, B, B, 5 which is not to contain any water, and it is from the thin body of water contained between the aforesaid two vessels that the steam is generated, which I have found equal to what could be obtained from the external boiler, altho' it had been filled with a solid body of water; consequently steam is thereby generated with less fuell than of the mode at present used; should it be necessary, 10 steam might also be produced in a similar way to that already described, by having two other vessels; the section of the interior one (against whose surface the same fire would act) is represented by C, C, C, C, and the section of the external of these two vessels is represented by D, D, D, D. The internal or space between these two vessels might be filled with water, and the steam gene- 15 rated therein might be united by the means of pipes to the other steam produced by the interior boiler or vessels A, A, A, A, and B, B, B, B.

The steam thus generated is conveyed by means of the tube E, E, into a reservoir or steam vessell F, from which it may be conveyed by means of the tube or pipe G to the cylinder of a steam engine, as represented by the letter H, 20 or applied to any other purpose where steam is used or wanted.

In witness whereof, I, the said Matthew Pitts, have hereunto set my hand and seal, this Twenty-third day of April, in the thirty-third year of the reign of King George the Third, and in the year of our Lord One thousand seven hundred and ninety-three.

MATTHEW PITTS. (L.S.)

25

AND BE IT REMEMBERED, that on the Twenty-fifth day of April, in the year of our Lord 1793, the aforesaid Matthew Pitts came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And 30 also the Specification aforesaid was stampd according to the tenor of the Statutes made for that purpose.

Inrolled the Twenty-fifth day of April, in the year of our Lord One thousand seven hundred and ninety-three.

LONDON :

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